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Webifying a Workshop: From Our Classroom to Their Desktop

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ABSTRACT. The Knowledge Bank is The Ohio State University's institutional repository, which houses various works by students, faculty, and staff. One of the text collections in the Knowledge Bank is electronic honors theses. Training students to submit their theses was initially given in the form of in-person workshops. Turnout for these workshops was sparse despite attempts to vary the times and days on which they were held and in contrast to the increasing number of questions received about the submission process. In addition to low turnout, requests for workshops at branch campuses made the idea of providing the workshop via the Web seem a desirable solution. This article discusses the criteria for creating such online tutorials and includes information from the literature about similar projects creating Web-based instruction. The authors created the KB Honors Theses tutorial through the use of screen-capture software and voiceover narration. The process through which the authors created their online tutorial is given, including technical aspects and examples of solutions to problems that arose. A description of each module of the tutorial serves as an overview of the content. Each module
can be accessed as part of an overall video or individually. Testing and evaluation of the tutorial is also described, including an examination of Web statistics to determine which operating systems and browsers are most commonly used to access OSU Libraries Web pages. Details of problems encountered and solutions to those problems are given. The article concludes with ideas for future directions for the online tutorial.

From the inception of The Ohio State University's institutional repository, Knowledge Bank, the Ohio State University Libraries envisioned users submitting their own resources to the system.[1] One of the first major collections comprised honors theses. In an effort to assist students submitting their work to the Knowledge Bank, the authors developed a training workshop and supplementary materials, including handouts and a Web page of submission guidelines. Students, who increasingly have more of their course materials such as notes, quizzes, discussions, and class lectures delivered online, did not attend the workshops in great numbers. However, questions received about all aspects of the honors-theses submission process demonstrated that workshop information needed to be accessible. As a result, the authors retooled the in-person workshop for viewing on the Web to give students convenient access to the information. Through the use of screen-capture software with voice-over narration, the in-person workshop was transformed into an online tutorial available via the Web. The purpose of this article is to describe the background of the tutorial, methodology used in creating and determining content for the tutorial, and technical testing methods used to evaluate the tutorial.

Project Background

The Honors and Scholars Center at Ohio State began requiring honors students to submit their theses to the Knowledge Bank in Fall 2005 after a one-year trial period in which students were strongly encouraged to voluntarily use the system. The honors submission process was

modeled after the electronic theses and dissertation workflow coordinated through OhioLINK, a statewide consortium. A workshop and review of student submissions are major components of the electronic theses and dissertation process.

The honors-theses workshop is an instructional session offered in a computer classroom. Students are given an overview of the Knowledge Bank, shown a demonstration of the submission process, receive an explanation of metadata, and practice converting a Word document into PDF format. Each student's submission is reviewed by library staff before being made available via the Knowledge Bank.

Turnout for the workshops was never more than thirteen people per session. Initially, both of the Fall 2004 workshops had two attendees. Then, no students attended workshops offered until Spring 2005–the first spring semester after electronic submission became a requirement when eight and thirteen students attended the two sessions offered. Yet, during this semester, 100 students submitted honors theses to the Knowledge Bank. Over the 2005-06 academic year, no students attended any of the sessions; even varying the days and times for the workshops did not increase attendance. Coupled with requests to give the session at regional campuses and an existing PowerPoint presentation enhanced with written commentary from the workshop available on the Web, lack of attendance prompted the decision to retool the workshop session and create an online tutorial.

Others Libraries' Experiences

The authors surveyed the library literature to direct the focus and development of the honors theses online tutorial. The review revealed that Web-based library instruction has increased and evolved as new technologies facilitating creation of multimedia resources emerge. John Hickok provides a thorough report on the use of "videos and computer-assisted tutorials" used by libraries in his article on the development of Web-based library tours.[2] The rationale for creating tutorials, the types of tutorials, and best practices in creation of online tutorials all converge in the literature.

Four reasons for initiating online tutorials appear across the reviewed literature: Web-based tutorials provide the ability to reach more patrons (e.g., distance learners and those who do not/cannot visit the physical library;[2,3,4] provide on-demand convenience for users;[5,6] appeal to multiple learning styles to convey information;[2] and enable delivery of more detail and online assessment.

Live-action video tutorials and guided tutorials with and without voice-over narration are the general types of online tutorials discussed. Topics of streaming video tutorials ranged from the library portion of a firefighter certification[3] to traditional library orientation tours with interactive tutorials[2] to general library services for distance learners.[7] Another topic of guided tutorials, with and without voice-over narration, was library instruction.

Best practices in the creation and development of video or online library tutorials are also similar in the literature. Lyndon Pugh,[8] describing the best use of video in practical training, gives five principles: (1) make it relevant, (2) make it short, (3) use it in the right place, (4) brief, and (5) debrief. Online library instruction articles provide similar tenets of good tutorials. Before beginning such tutorials, one should ensure the project meets an existing need.[9] Several features and options should be available for users. Modes of access options include alternatives such as varying compression rates and alternative access (e.g., compact discs for classrooms without an internet connection). Content options can vary, including differing levels of detail (i.e., brief vs.

in-depth tutorial) and including interactivity or active learning exercises (i.e., quizzes and vocabulary definitions) in each tutorial session.[2,9,10] Segmenting the tutorial into short modules is another common thread appearing in the literature.[2,6,7,10]

The focus of the authors' tutorial was not traditional library instruction but a workshop to assist honors students in the process of submitting their theses to the Knowledge Bank. Components of the workshop included aspects of traditional library instruction from a different perspective. For instance, the database-searching modules focus on searching for either known titles or works on similar topics to gain access to relevant subject headings or descriptors students may choose as keywords to assign to their theses during the submission process. The authors employed most of the best practices found in the literature. Interactivity, however, was addressed slightly differently: all tutorials created allow students to pause the tutorial and repeat the steps shown in another window. Additionally, Colleen Boff and Catherine Cardwell's[9] suggestion to provide the tutorial in alternate formats was an idea the authors had not previously considered. As a result, the authors created a disc containing the tutorial for permanent reserve in the OSU Libraries.

One advantage of such a tutorial is that it employs the use of both the visual and verbal processing channels of working memory. It has been found that the use of both visual and verbal features at the same time allows for better transfer to long-term memory.[11]
Would students be as happy with an online tutorial as they would be with a Web version? In a comparison study between an in-person library instruction session and a streaming-video session with engineering students, there was little difference in satisfaction level, and the students who used the video option stated they had learned as much as the students who had used the live option. Online instruction was thus suggested to be an adequate alternative to a live instruction session.[12]

The Technical Part

Although the workshop was a polished event and a modified PowerPoint version of the live session was available online, conversion to a Web-enabled format was a much more detailed process than either of the authors had previously undertaken. One of the suggestions received to address remote users was to videoconference the workshop. However, rather than film a tutorial in a classroom, the authors decided to produce a voiced-over recording of actions on the computer using screen-capture software. Using software designed for this format was also more convenient than recording a session with a camera or videoconferencing, and it allowed for easier editing.

Multiple software packages, such as Adobe Presenter, Camtasia Studio, NetPlay Instant Demo Screen Recorder, and Macromedia Captivate, allow users to record what is happening on the computer's screen in real time. Since one of the creators of the tutorial had previously used an older version of Camtasia, Camtasia Studio was used for the online tutorial.

After selecting the software, the authors discussed several options about how to offer the tutorial to students:

1. *Multiple formats of the tutorial:* To provide more access options, the authors decided to give users two options for viewing the tutorial. The Flash (file extension.swf) version defaults to open within a browser. Audio Video Interleave (file extension.avi) defaults to open with Windows Media Player on PCs. QuickTime (file extension.mov) versions were

added to give Mac users the option to view the tutorials in a multimedia player or PC users to open within a browser.

2. *Modular access to tutorial topics*: Students use resources in a variety of ways. Since some students may be interested in a particular area only, the option to view sections of the tutorial instead of
having to view the entire tutorial was provided. For those students who wanted to review the entire content of the tutorial, a version including all of the modules was created. In addition, the authors were able to create multiple modules for assigning subjects, using several different online resources. This expanded on the content presented in the workshop session, which used only one database and the library catalog as examples.

3. *Compatibility with a variety of Web browsers and operating systems:* Examining server statistics, the authors determined the most widely used browsers and operating systems accessing the OSUL's Web server by examining eighteen months of data from January 2005 to June 2006. Table 1 shows details about the operating systems. Windows was used most often, with Mac operating systems coming in a distant second. The Web browsers were a bit more spread out. Internet Explorer was by far the most widely used browser, with Firefox, Safari, and Netscape following (see Table 2).

At this point, the authors decided to limit testing to any browser or operating system used by one percent or more of the user population. As a result, UNIX operating systems (including Linux) and browsers such as Mozilla and Opera were not tested. Handheld devices were also not tested because of extremely low percentage of use. Testing of browsers and operating systems is discussed in a later section.

After determining what the final tutorial output would be, the authors focused on the recording sessions. In an effort to reduce the likelihood of unintended background noise while recording using Camtasia, the authors used an office with a door, providing a somewhat controlled environment for recording. While recording the tutorials, however, several unanticipated distractions were encountered. The following are the distractions and their solutions:

Simultaneous recording and voice-over vs. adding voice-over: Since neither of the authors were expert editors, screen shots and voice-over narration was captured simultaneously rather than as separate video and audio segments, allowing perfect synchronization of narration with onscreen action.

Interruptions by others (e.g., phone, knocking on door): A sign was placed on the door notifying people that someone was in the process of recording. The telephone was set to silent ring.

Extraneous computer noises (e.g., e-mail, instant messenger, and other alerts): All programs not essential to the recording session were exited before recording.

TABLE 1. Operating Systems Used to Access OSU Libraries Web Pages

18 Month Usage	Windows	Mac	Unix/Linux	Unknown
% of total use	88.6%	2.7%	0.2%	8.4%

TABLE 2. Web Browsers Used to Access OSU Libraries Web Pages

18 Month Usage	Internet Explorer	Firefox	Safari	Netscape	Mozilla	Opera	Unknown
% of total use	83.9%	5.1%	1.6%	1.0%	0.5%	0.2%	7.7%

Recorder noises/errors (e.g., coughing, stuttering, taking loud breaths): In order to minimize noises on the recording, the authors saved the session often while progressing through a module. The parts were combined seamlessly by Camtasia, eliminating the need to re-record the entire session if a mistake was made. Also, capturing the modules in small parts enabled recording of several versions of each part for review and selection of the best version for the final module.

Editing: If a certain segment of a module had a problem, only that segment required editing since each module was composed of several parts. Also, additional items, such as transitions in certain places or even a second audio file, such as music, could be added to a video if desired.

Combining modules: With Camtasia, several segments can be combined. The software has an area where the user can load video segments, even including items not recorded by the software, by dragging and dropping onto a timeline. Eventually, all the modules were combined into one large tutorial.

Background music: The authors viewed an example that used background music in a live-action video introduction from another library. While the music added a pleasant touch to the video, the speaker's voice was obscured in certain sections. To avoid this, the authors decided to not use music.

Content Criteria

Several topics are covered in the workshop:

- A short tour of the Knowledge Bank
- An explanation of why the PDF format is required and what is needed before converting
- An example of converting to PDF
- A demonstration of the submission process and the importance of metadata
- An introduction to assigning subjects and how to choose these terms

In addition to these topics, the tutorial also included a short introduction in order to provide context. The final tutorial modules and their names are in Table 3. Three major topics are each covered in two modules apiece: Introduction, PDF Conversion, and Metadata. A description of the goals and content decisions for each of these topics follows, as well as a brief discussion of general content decisions regarding length and format for all modules.

Introduction

The first module offers an overview of all of the tutorials and gives useful tips for the overall process. Module 2 is an overview of the Knowledge Bank system as well as a description of the Honors and Scholars Center presence on the Knowledge Bank. The module also refers students to important information needed throughout the submission process.

TABLE 3. Honors Theses Tutorial Modules

Segment	Title
Modules 1-6	Knowledge Bank Honors Theses Video Tutorial: All -in-One
Module 1	Introduction
Module 2	Tour of the OSU Knowledge Bank
Module 3	Why Am I Converting to PDF and What Do I Do Before I Convert?
Module 4	Converting to PDF
Module 5	The Submission Process
Module 6	Assigning Subjects
Assigning Subjects	Academic Search Premier: A database good for a variety of topics*
Alternate Assigning Subjects	OSU Library Catalog: Good for books on all topics
Alternate Assigning Subjects	Compendex: A database good for all engineering topics
Alternate Assigning Subjects	ISI Citation Databases: Good for most topics
Alternate Assigning Subjects	PsycINFO: Database for psychology topics

**Please note that at the time of this writing, OSUL offered access to Academic Search Premier; however, plans were recently put in motion to switch to Academic Search Complete, at which time a new module would be created.*

PDF Conversion

The first of two modules on PDF conversion, Module 3, discusses reasons for converting to PDF so students will understand why they cannot submit their theses as Word, WordPerfect, or other word-processing documents. In addition, the module describes steps for students to take before converting to PDF, such as having the document completely ready, remembering a storage device on which to save the PDF document, etc. Module 4 gives a short example of converting a document to PDF. The tutorial includes an example document with images, charts, graphs, and foreign-language characters. In addition, students are shown special features of Adobe, such as creating bookmarks and checking for accessibility.

Metadata

Module 5 is a demonstration of the submission process. One of the Knowledge Bank's fundamental policies is that users, not library staff, create metadata and submit their own digital resources to the repository. The module begins with an introduction of metadata as a good description of a thesis, since "metadata" in library context is a term with which most students are not familiar. The importance of metadata in accessing, retrieving, and storing electronic resources is stressed. The last portion of the module is a walk-through of the submission screens. Module 6 focuses on subject terms, arguably one of the most important metadata elements. Though full-text searching of theses is a capability of the Knowledge Bank, assigning topic keywords to a thesis is a required step in the submission process, one that provides enhanced access. Honors theses are not given subject headings by catalogers when records are added to the OSUL catalog.

The module begins with an overview of why subjects are important, some dos and don'ts when choosing terms, and an approximate number of terms to supply (four to six). Next, the module demonstrates a method students can use to locate good candidates for subject terms to assign to their theses. Students are shown how to examine subject headings of relevant catalog and database records through either known-item searching in databases or the catalog for cited works that most closely align with their thesis topic or searching databases to find similar articles. Students are then instructed to review the descriptors assigned to that work and/or access the thesaurus to search/browse for possible subject terms. In the workshop, the *PsycINFO*

database and the library catalog are the examples used to find subjects. With a modular approach to the tutorial, the authors decided to provide a general database example for the all-in-one tutorial. Additional alternatives to the all-in-one database are offered as separate Assigning Subjects modules (see Table 3), including the library catalog. This approach enabled coverage of several potential topic areas of the disciplines with the most honors students submitting theses. At some point, modules germane to disciplines submitting higher numbers of theses to the Knowledge Bank will be added.

Length

The authors decided no module should be more than five minutes in length. When it appeared a module was too long, the authors examined the segment for areas where time could be recovered. For example, one module had a long pause while waiting for a Web page to respond and load. A few seconds of the segment were cut, so the video page loading time is shorter than the real-time loading of the page. The longest module is four minutes, fifteen seconds long.

Format

To provide uniformity, each module begins with the module name and number. This also allows users to know they are entering a new module when viewing the tutorial that incorporated all modules. For the three modules that used PowerPoint slides, all three presentations used the same slide design to maintain continuity in appearance throughout the tutorial.

Web Site Organization

The Web site listed the available formats (Flash, QuickTime, and AVI) and the length of the modules beside the segment titles. The all-in-one module contained the first six modules plus the Assigning Subjects: Academic Search Premier module for a total running time of nineteen minutes, fifty seconds.

A Web site was then created for the students to access the tutorials. The authors decided to list the length of the tutorials so students will know what to expect. For the Flash files, Camtasia places information in the code by default so the software name appears in the title. Each Flash page was physically changed to display the name of the module being viewed. The AVI and QuickTime files are available as separate files so users may download them and/or view them in a multimedia player instead of having to open them within a Web page.

The Web site also provided a link to download information for Flash, QuickTime, and Windows Media Player. A troubleshooting handout for viewing the tutorials is also provided on the Web page. In addition, users are connected to the sites for the Knowledge Bank, a page on submitting the honors theses, and contact information for those needing further assistance.

Testing The Tutorials

Testing the tutorials for technical issues was performed on a variety of operating systems and Web browsers. The tutorials were tested on Macs running OS/X with Internet Explorer and

Safari browsers and on PCs running Windows XP with Internet Explorer, Netscape, and Firefox browsers. The most recent version of each browser was used. The authors found that the AVI files did not work as reliably on the Macs as on the PCs. At that point, the authors decided to add a QuickTime version, which worked on the Macs without problems.

The tutorials were also tested on PCs with a dial-up and DSL internet connection. Both the AVI and Flash files worked well with the DSL connection, but the dial-up connection did not work well with the AVI file, which requires downloading before viewing. After fifteen minutes, the module still did not play and continued to indicate it was downloading. The Flash files would play on a dial-up connection but paused at points to continue downloading. Thus, the authors decided to recommend dial-up users either select the Flash version or download one of the other versions onto their computer to view.

Evaluation and Recommendations

OSUL's Instruction and Outreach Committee was consulted to determine changes, additions, and correction that needed to be made to the tutorials. Suggestions for changes and the actions taken included:

- *Windows Media Player does not play video* (audio only): A section on this problem was added to the handout. Users need to download a codec if they are not seeing the video portion in Windows Media Player.
- *Lower quality sound for Flash* (the other two versions were of good sound quality): Since the Flash version worked best for dial-up connection, instructions on the Web page were altered to recommend Flash for dial-up users and QuickTime or AVI for those with higher speeds. Improving the sound quality with the Flash version did not seem possible.
- *Wording changes:*
  Several wording changes were suggested and implemented.

Personnel Time for Production

The tutorial modules ranged from a minimum of forty-four seconds to a maximum of four minutes, fifteen seconds. Most of the tutorial modules took at least thirty minutes to record. When recording, mistakes were inevitable (including coughing, stuttering, misspeaking, outside noises, etc.). Several re-recordings were required in each module. As stated above, recording the module in small snippets and saving regularly cut down on the amount of time spent in re-recording the modules. After doing several modules and getting used to recording, less time was needed to record subsequent modules.

Saving the modules in multiple formats generally took less than five minutes per format (with the tutorial that combines all the modules taking the longest). After the files were created, they were uploaded to the Web, and a Web page was created for the files. This took about one hour total. After uploading, testing the modules using the various formats, operating systems, browsers, and connection speeds took several hours to perform.

The largest amount of time spent on this project was content preparation. In order to record the modules, decisions about and final versions of the script, screen content (e.g., the delay after submitting a search in a database), presentation slides, a sample conversion

document, and appropriate searches for databases were needed, which could take up to two hours for each module. Overall, the entire process of making the tutorial occurred over several days.

Use of the Tutorial

From September 2006 through April 2007, the Web page for the tutorial was accessed a total of 153 times, and the videos available were accessed a total of 24 times. While the authors are unable to determine who accessed the site, the use of the tutorial modules were ten times greater than the previous year's in-person workshop attendance, suggesting that providing the tutorial for use at any time is a valuable service for the students.

Future Directions

The workshops will need to be monitored regularly to determine if changes in the submission process or in the resources mentioned (such as databases, Adobe software, etc.) will require updates to be made to the tutorial.

In the future, continued examination of the number of users accessing the tutorial can be used to determine the need for the online tutorial. Low use of the workshop would indicate the amount of time and effort in keeping the content updated with new tools and software would not be justified, since updates can take several hours to complete.

Another useful examination would be to determine the effectiveness of the tutorials on the students' use of metadata. Are the students who were using the tutorials online choosing better terms for metadata than students not using the tutorials? Adding a question to the submission flow about whether the student viewed the workshop would allow librarians to compare of metadata usage and quality.

Conclusion

The Honors Theses Tutorial is a solution to the problem of filling an information need outside of the traditional classroom environment. The Knowledge Bank submission process has basic requirements and procedures that must be adhered to ensure preservation and accessibility of student theses into the future. The modular format of the tutorial affords students the opportunity to select specific topics or to view the entire tutorial. Technically, Camtasia software facilitated the conversion of the content of the in-person workshop to Web-based information. Testing and evaluating the modules highlighted needed improvements to the Web page and supporting documentation. The authors were unable to resolve only one problem: variation in sound quality of the Flash version. Further evaluation from students, focusing on utility, ease of use, and system compatibility, will ultimately determine the success of the tutorial for conveying information to students.

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